

CALIFORNIA DIVISION OF MINES AND GEOLOGY

FAULT EVALUATION REPORT FER-109

SUPPLEMENT NO. 1

October 31, 1981

1. Fault.

Pleasanton fault.

2. Location.

Dublin 7.5-minute quadrangle, Alameda and Contra Costa Counties.

3. Reason for evaluating.

New information received in response to the issuance of Preliminary Review Map of Special Studies Zones Maps, Dublin quadrangle, July 1, 1981; re-evaluation of existing data.

4. Additional references (see FER-109).

Contra Costa County Planning Department, 1981, Letter of Oct. 13, 1981 by A.A. Dehaesus to State Mining and Geology Board, 2 p.

Engco, Inc., 1981, Letter of Sept. 23, 1981 by W.B. Wigginton to Earl Hart, 2 p.

Hart, E.W., 1981a, Calaveras, Pleasanton and Sherburne Hills faults, Diablo quadrangle, California: California Division of Mines and Geology Fault Evaluation Report FER-110, with supplement No. 1 of 10/30/81 (unpublished report on file at San Francisco District Office).

Hart, E.W., 1981b, Pleasanton and related faults, Dublin quadrangle vicinity: California Division of Mines and Geology Fault Evaluation Report FER-109 (unpublished report on file at San Francisco District Office).

Lindvall, Richter and Assoc., 1981, Letter of Sept. 21, 1981, by R.J. Proctor to D. Van Voorhis, 3 p.

Terrasearch, Inc., 1981, Letter of July 24, 1981<sup>by</sup> Richard Rowland to Earl Hart, 3 p.

Wahler Associates, 1981, Geologic and fault investigation, SPRR property, Hacienda Business Park, Pleasanton, California: Unpublished consulting report on file at CDMG (# C-483).

5. Review of available data.

Based on new data obtained from Terrasearch (1981) and Wahler (1981), it is necessary to review the proposed zoning recommendations made in FER-109 (Hart, 1981b) for the Pleasanton fault in the Dublin quadrangle.

A detailed site investigation conducted by Wahler and Associates (1981) south of Highway I-580 has indicated that a segment of the Pleasanton fault is not active. Wahler's conclusion is based on a 15-foot deep trench excavated across the assumed trace of the Pleasanton fault (Figure 1). Trench exposures in alluvium, dated at  $9,770 \pm 400$  years B. P. at a depth of 11.2 feet, showed no evidence of faulting.

An unreleased report by Terrasearch (1981) and correspondence received from Engeo Inc. (1981), Lindvall, Richter and Associates (1981), and Contra Costa County (1981) indicate that minor soil offsets associated with bedrock faults and shears in the Dougherty Hills, north of the Dublin quadrangle, are probably widely distributed and may be due to non-fault causes. This information is discussed in Supplement No. 1 to FER-110 (Hart, 1981a). The opinions and findings of others make it appropriate to re-evaluate the recommendations to establish a Special Studies Zone (SSZ) in the Dougherty Hills area to the Dublin quadrangle (Figure 1).

In FER-109, Hart (1981b) had concluded that the Dougherty Hills segment of the inferred Pleasanton fault was not well-defined and that geomorphic evidence for Holocene faulting was lacking. The only fault recommended for zoning (Figure 1) was based on evidence of discontinuous minor soil offsets associated with bedrock faults as reported by others (Terrasearch investigations of 1974 and 1979; CDMG file reports C-463, AP 23, AP 1111; see Hart, 1981a).

These data are brief reviewed below (the locality numbers identified on Figure 1 correspond to the paragraph numbers):

1. Hump in old Ranch Road -- this broad, linear, north-trending feature aligns with a fault and associated groundwater barrier exposed at localities 2 and 3. The "hump" is formed in the road and curbs and is believed to be due to expansive soils along a fault zone, as there is no evidence of horizontal or vertical offset in the road.
2. A 1979 Terrasearch report (AP 1111) identifies a north-trending, steeply east-dipping fault in bedrock. In trench T-2, an undated "soil mixture" is reportedly offset, but the overlying topsoil is not. A soil "step" of 2 or 3 feet (down to the west) occurs just west of the fault zone, but does not coincide with it. The soil/bedrock interface is uneven, presumably due to several phenomena (e.g., differential soil development, burrowing animals, downhill movement of rock & soil). Trench T-3 (50 feet to the south) shows a similar bedrock fault, but the soil above it is not obviously offset. Again the soil/bedrock interface is uneven, both at the fault and away from it.
3. Terrasearch (1974; CDMG report AP 23) reported a shear zone associated with a "deepening of the soil profile." However, no fault is identified on the sketchy trench log, although the bedrock units are shown to dip steeply to the east.
4. Terrasearch (1979; CDMG report C-463) identified a possibly active fault that was exposed in six trenches (locations identified in Figure 1). Soil reportedly was offset 2.5 feet (east side down) along an easterly dipping fault in trench T-4. This trench, located 550 feet south of Locality 2, was examined on 6/12/79 by this writer, whose notes and sketch log clearly show the soil "offset" to be due to differential burrowing along a minor shear zone in the Orinda Formation. Five other logs of trenches that crossed the inferred active fault to the south revealed no evidence of recent soil displacement. No other evidence for recent faulting was reported anywhere else in the southern Dougherty Hills by Terrasearch, who did extensive trenching throughout the area. Their trench logs, in fact, show numerous other bedrock faults and shears elsewhere in the hills. Many of the shears parallel the bedding.

## 6. Conclusions.

The southernmost end of the inferred Pleasanton fault was not identified in a long, deep trench south of Highway I-580 (Wahler, 1981). The trench exposed

alluvium representing much, if not all, of the Holocene. Therefore, it is presumed that no Holocene fault exists at this location.

The inferred active fault proposed for zoning in the Dougherty Hills does not appear to be an active fault. If Holocene faulting has occurred in that area, it is minor, discontinuous and distributive.

Except for the Camp Parks area, there is no evidence that the Pleasanton fault is either Holocene-active or well-defined in the Dublin quadrangle.

7. Recommendations.

a. Camp Parks area -- zone only that portion of the inferred Pleasanton fault north of Highway I-580.

b. Dougherty Hills -- do not zone any faults in this area.

For other recommendations, refer to Hart (1981b).

8. Report prepared by:

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October 31, 1981

EWH/map

TABLES: 195 R 1 W 551 26 4 11 150000 FEET

Figure 1 (Supp. No. 1, FER-104). Proposed Special Studies Zones of 7/1/81, Dublin quadrangle. See text for discussion of localities.

